REMARKS/ARGUMENTS

Favorable reconsideration of the present application is respectfully requested.

Claims 1-9 have been cancelled by this amendment. New Claims 13-22 have been introduced.

New Claim 13 newly recites a liquid level detector for detecting the liquid surface level of the electrolyte, and that the first automatic valve is configured to open to start feed of hydrogen fluoride gas when the liquid level detector detects that the liquid surface level of the electrolyte is at or lower than a predetermined level, and to close to stop hydrogen fluoride gas feeding when the liquid level detector detects that the liquid surface level of the electrolyte is at or higher than a predetermined level. Basis for the liquid level detector is the liquid level sensor 5. Basis for the opening and closing of the first automatic valve in view of the detected liquid level is found at lines 13-17 of page 9.

New Claim 17 newly recites that the first automatic valve is configured to close to stop hydrogen fluoride gas feeding in the event of an emergency stop of the fluorine gas generator. Basis for this is found in the paragraph bridging pp. 9-10.

New dependent Claim 14 further recites that the first automatic valve is located above the predetermined level of the liquid surface level of the electrolyte and the inert gas feed line is connected to the hydrogen fluoride gas feed line at a location above the predetermined level of the liquid surface level of the electrolyte. New Claim 18 similarly recites that the first automatic valve is located above the maximum liquid surface level of the electrolyte and the inert gas feed line is connected to the hydrogen fluoride gas feed line at a location above the maximum liquid surface level of the electrolyte. Basis for this is evident from Fig. 1.

New Claims 15 and 19 are based on cancelled Claim 2. New Claims 16 and 20 are based on cancelled Claims 3, 5 and 8-9.

New method Claims 21-22 recite the features of new Claims 13 and 17, and further recite method steps inherent in the claimed structure. Examination of these method claims together with the apparatus claims is therefore believed to be in order.

All of the present claims recite an inert gas substitution means for feeding an inert gas from the inert gas feed line to the hydrogen fluoride gas feed line when the first automatic valve is closed. As has previously been explained, the structure disclosed in the specification as corresponding to the inert gas substitution means is the inert gas feed line 91 (Fig. 2) which connects the inert gas storage tank 92 to the HF gas feed line 24 downstream of the first automatic valve 81.

That is, when a HF gas feeding stops, due to the detected liquid level or an emergency situation, the first automatic valve 81 is closed. Applicants have found that this creates a negative pressure in the HF gas feed line downstream of the first automatic valve 81, which can draw the electrolytic bath into the HF gas feed line. This can cause clogging of the line due to solidification of the electrolytic bath in the line (p. 2, lines 23-28).

Therefore, as is described beginning at line 13 of page 9 in the specification, the inert gas feed line 91 feeds inert gas from the inert gas storage tank 92 into the HF gas feed line 24 on the side downstream from the first automatic valve 81. This has the beneficial effect of preventing the negative pressure downstream of the closed first automatic valve 81 from drawing the electrolytic bath into the HF gas feed line.

Claims 1-9 were again rejected under 35 U.S.C. §103 as being obvious over Tojo et al in view of Saito et al. The Office Action there recognizes that "Tojo is silent regarding an inert gas substitution means." Nonetheless, because Tojo et al teaches that HF gas is corrosive, it is the position of the Office Action that it would have been obvious in view of the inert gas purge system of Saito et al for one skilled in the art to have provided Tojo et al

with the claimed inert gas substitution means to prevent the corrosive HF gas from corroding the HF gas feed line.

It is respectfully submitted, however, that the cited prior art would not have provided one skilled in the art with an apparent reason to have provided Tojo et al with an inert gas substitution means for feeding an inert gas to the hydrogen fluoride gas feed line when the valve therein is closed.

As a threshold matter, Tojo et al teaches that the elements exposed to the corrosive HF gas are formed of materials having resistance to the corrosiveness of the HF gas. (Although only the absorption towers are mentioned at lines 1-5 of col. 8 in Tojo et al, the same corrosion resistant materials would be used for any components exposed to the HF gas). Therefore, there would be no need to add a purge system to protect the corrosion resistant HF feed lines of Tojo et al from the HF gas that they are designed to convey.

Saito et al purges reactant gas lines with inert gas (N_2) to prevent environmental pollution as the reaction vessel is returned from a vacuum to atmospheric pressure (col. 2, lines 23-25), not to protect the gas lines from the gas that they are designed to convey. Since the HF feed line in Tojo et al does not return from a vacuum to atmospheric pressure, Saito et al also would not provide an apparent reason for one skilled in the art to have provided Tojo et al with an inert gas substitution means for feeding an inert gas to the corrosion resistant HF gas feed line when the valve therein is closed.

The present invention is instead based on the recognition by applicants that the electrolytic bath will be drawn into the HF gas feed line by a negative pressure upon the closing of a first automatic valve, and that this can lead to clogging of the line due to solidification of the electrolytic bath in the line (see lines 23-25 of page 2 in the present specification).

This problem is not taught in Tojo et al wherein the solenoid valve in the HF gas feed line is closed when the predetermined liquid level of the fluorine bath is detected by the level sensor (sentence bridging cols. 10-11). Once the HF gas feed line in Tojo et al is closed when the predetermined liquid level of the fluorine bath is detected by the level sensor, the teachings of the prior art would not lead one skilled in the art to fear that the liquid level of the fluorine bath would rise further into the HF gas feed line, or to believe that feeding inert gas into the HF gas feed line would prevent such an occurrence.

Similarly, it is not taught by Saito et al which purges reactant gas lines with inert gas (N_2) to prevent environmental pollution as the reaction vessel is returned from a vacuum to atmospheric pressure, but lacks a fluorine bath.

Without the recognition of the problem that corrosive electrolytic bath is drawn into the HF gas feed line due to a negative pressure downstream of a closed first automatic valve, one skilled in the art would have had no reason to go to the expense of providing an inert gas feed line to the corrosion resistant HF gas feed line, downstream of a solenoid valve in Tojo et al. See, for example, Teaching Point 4.1 in the PTO's *Examination Guidelines Update: Developments in the Obviousness Inquiry After KSR v. Teleflex*: "Even where a general method that could have been applied to make the claimed product was known and within the level of skill of the ordinary artisan, the claim may nevertheless be nonobvious if the problem which had suggested use of the method had been previously unknown." That is, "when the combination requires a greater expenditure of time, effort, or resources than the prior art teachings ... the claimed invention may nevertheless be nonobvious when the combining step involves such additional effort that no one of ordinary skill would have undertaken it without a recognized reason to do so." *Examination Guidelines Update*, *supra*, at section 4A. In this case, whatever the teachings of Saito et al, one skilled in the art would not have undertaken

the "expenditure of time, effort, or resources" to add an inert gas feed line to the HF gas feed line in Tojo et al to address a problem that had not been recognized in the art.

New Claims 14 and 18 further recite that the first automatic valve is located above a predetermined or maximum liquid surface level of the electrolyte, and the inert gas feed line is connected to the hydrogen fluoride gas feed line at a location above the predetermined or maximum level of the liquid surface level of the electrolyte. Therefore, the liquid level of the electrolyte will not rise by gravity, e.g., during level equalization as occurs in Tojo et al, into the HF feed line to the first automatic valve. For this reason as well, Claims 14 and 18 are believed to define over the cited prior art.

Applicants therefore believe that the present application is in a condition for allowance and respectfully solicit an early notice of allowability.

Respectfully submitted,

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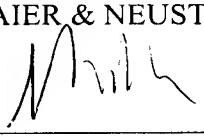

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